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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/729,479

12/05/2003

Mario M. Pelella

039153-0683 (H1721)

3094

26371

7590

01/21/2005

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EXAMINER

NHU, DAVID

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/729,479

Applicant(s)

PELELLA ET AL.

Examiner

David Nhu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAIL ACTIONS**

**Specifications**

1. Page 9, line 0044, "100-500 C" should be --100 – 500 °C--

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-16 are rejected under 35 U.S.C. 102 (e) as being anticipated by Zaidi (6,835,246 B2).

**Regarding claim 1**, Zaidi, (see figures 1-17, col. 7-11, col. 1-67), disclose a method of manufacturing an integrated circuit substrate 22 including a strained layer 28, the method comprising: providing a base layer 32; providing an insulating/dielectric layer 26 above the base layer; providing a semiconductor layer 34, 12, 26, 38, 42, 44, 46 above the insulating layer (see figures 1-5); and forming a plurality of pillars 12a, 12b in the base layer 32a, 32b (see figures 3, 15).

Regarding claims 2-8, Zaidi, (see figures 1-21, col. 1-67), also teaches providing a compressive material 46 in apertures/grooves associated with the pillars; planarizing the compressive material 46 until the base layer is reached; the semiconductor layer 60a-60a-60d (see figure 15) includes silicon; the insulation/dielectric layer 26 includes silicon oxide/dioxide;

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the base layer includes silicon; wherein the pillars 12 have a width thickness of angstroms; the compressive material 46, 60, 74 includes nitride.

**Regarding claim 9**, Zaidi, (see figures 1-17, col. 7-11, col. 1-67), disclose a method of forming a strained semiconductor layer 28 above a base layer, the method comprising: etching a plurality of trenches 44a-44b in the base layer 32; and providing a compressive material 46 in the trenches (see figures 3, 5).

Regarding claims 10-16, Zaidi, (see figures 1-21, col. 1-67), also teaches providing a liner 42, 62 in the trenches; providing a mechanical compressive force on the base layer; where the trenches in a waffle pattern; the compressive material is a thermal resistance material and includes nitride; a buried oxide/dioxide layer 26 is between the base layer and the strained semiconductor layer; wherein the semiconductor layer is silicon.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 21-24 are rejected under 35 U.S.C. 102 (e) as being anticipated by Dakshina-Murthy et al (6,803,631 B2).

**Regarding claim 21**, Dakshina-Murthy, (see figure 4A, col. 10-31), teaches a method of making a substrate 100, the substrate including a strained layer 305 and a base layer 210,

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215 below the strained layer, the method comprising: forming trenches 205 on a side opposite the strained layer, the trenches including stress in the strained layer (see col. 4, lines 1-9). Regarding claims 22-24, Dakshina-Murthy, (see figures 1-6, col. 1-67), also teaches the strained layer is silicon; providing compressive material in the trenches; providing a buried oxide 110 between the strained layer and the base layer.

### Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Fitzgerald'191, Cleaves'204, Wristers'106 are cited as of interest.

7. A shortened statutory period for response to this action is set to expired 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see 710.02 (b)).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Nhu whose telephone number is (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM. The examiner's supervisor, David Nelms can be reached on (571)272-1787.

*The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.*

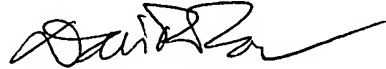
*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.*

*Information regarding the status of an application may be obtained from the patent application information retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status*

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*information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).*

David Nhu



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